

## REMARKS

The undersigned and the applicant thank the Examiner for the interview which took place on November 9, 2004. The data presented in the declaration, as well as the amended claims presented in this amendment, were discussed at the interview. This amendment makes the substance of the interview of record in the case.

Claims 1 and 7 have been amended to include most of the features of claims 2 and 8, respectively, and claims 2 and 8 have been canceled. Claims 14-39 have been canceled without prejudice as being drawn to a non-elected invention. Claims 40-43 have been added. Support for new claims 40-42 can be found in the Examples section of the specification (see, e.g., pages 12-14), and support for an amendment to claims 1 and 7 and new claim 43 can be found in the specification at page 10, lines 5-8.

Attached to this petition and amendment is a new declaration in compliance with 37 C.F.R. 1.67(a) identifying the application by serial number and filing date. A request for recordation of an assignment accompanies this petition and amendment, and records the assignment to Oyama Technical Consulting.

Claims 1-13 were rejected for indefiniteness under 35 U.S.C. 112, second paragraph. In response, independent claims 1 and 7 now specify that the high surface areas support is at least 50m<sup>2</sup>/g. Support for this can be found on page 10, lines 5-8. In view of the amendment, the rejection should now be withdrawn.

Claims 1-13 have been rejected as being anticipated by or obvious over U.S. Patents 4,454,246 and 4,359,406 to Fung. Claims 1, 2, and 4 have been rejected as being anticipated by or being obvious over the Journal of Catalysis article (XP009009979). Claims 1-13 were rejected as being obvious over U.S. Patent 4,367,137 to Antos. Each of these rejections is traversed in view of the amendments above, the remarks below, and the concurrently filed declaration of Dr. Oyama.

Specifically, the claims require formation of a metal phosphide catalyst where the metal is selected from V, Cr, Mn, Fe, Co, Ni, Nb, Mo, Ta, and W. As demonstrated by the data in section 2b of Dr. Oyama's declaration, Fung's processes

cannot result in a metal phosphide of V, Cr, Mn, Fe, Co, Ni, Nb, Mo, Ta, and W. Further, as demonstrated by section 2c of Dr. Oyama's declaration and its attachments, Antos does not produce a metal phosphide catalyst where the metal is V, Cr, Mn, Fe, Co, Ni, Nb, Mo, Ta, and W; rather, Antos' comments and the data suggest a cobalt phosphide was not made. In addition, the claims require that the support be any of carbon, silica, titania, thoria, magnesia, zirconia, kaolin, bentonite, kieselguhr, zeolites, and combinations thereof. Alumina is not included. Dr. Oyama's declaration at item 2d demonstrates that these other supports allow formation of the metal phosphide at a significantly lower temperature than can be achieved when alumina is the support. This provides significant, unexpected advantages in the ability to make and use the catalysts.

Upon review of the Fung, Antos, and Nozaki references, it is clear that the applicant has identified a specific combination of metals on a specific group of supports which were not previously recognized. Fung provides a listing of a variety of supports, including alumina, as well as a listing of a variety of metals. Thus, there is no recognition in Fung of the combination of the specific metals on the non-alumina supports. Furthermore, Dr. Oyama's declaration establishes that the combination of metals on the non-alumina supports would not be obvious to one of ordinary skill in the art over the Fung references, as well as Antos and Nozaki, alone or in combination. This is because Fung and Antos demonstrate methodologies which would not yield the claimed combination. Both references also show the use of alumina supports. Furthermore, Nozaki does not recognize or suggest the significant advantage of using non-alumina supports for metal phosphides.

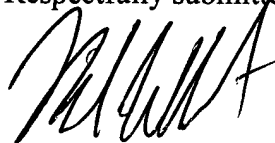
In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1, 3-13, and 40-43 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for

the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael E. Whitham', is written over the typed name.

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